Risk Reduction in Online Flight Reservation: The Role of Information Search

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Abstract: The air industry is very competitive. Operating costs are high. To survive and earn profits, it is imperative for airlines to save substantial costs. This can come from selling tickets online. However, in many developing countries including Malaysia, a lot of consumers still refuse to buy flights online. Perceived risk of the internet is a key likely reason. To overcome this resistance, reducing perceived risk is crucial. This study examines the influence of perceived risk and risk-relievers on intention to reserve flight online. The two risk-relievers investigated are information type and personal sources of information. Using data collected online, PLS-SEM analysis was conducted to examine the relationship between type of information, personal sources of information, perceived risk, and intention to reserve flight online. Information type is found to relieve perceived risk and increases online reserve intention. Surprisingly, the results for personal sources of information show otherwise. In addition, perceived risk is empirically supported as being multidimensional. The findings suggest the importance of managing information to relieve risk perceptions so that airlines can stimulate higher online reservations. Thus, better profits can be made in spite of a competitive business environment.

Keywords: Perceived risk, risk-relievers, online, air tickets, flight, information.

1. INTRODUCTION

Globally, online air ticket sales has been growing steadily over time coming mostly from advanced countries like the United States and Europe (Jacobsen & Munar, 2012). In many other countries, online reservations are substantially lesser due to lower penetration of home computers, and doubts about internet security of credit card payments (Belobaba, Barnhart, & Swelbar, 2016).

The air industry is very competitive, and profits are thin, if any. One way to save costs and improve profits effectively is to sell tickets directly to consumers online. Indeed, the International Air Transport Association (IATA) made it compulsory for all its members to adopt electronic ticketing from 2008 onwards to stem the huge losses of the industry since 2001 (SITA, 2009). Savings come from bypassing travel agents to avoid high commission fees, and downsizing of costly physical ticketing office. To stimulate more online reservations, airline managers need to better understand risk perceptions, and how consumers try to relieve perceived risk.

The literature reveals limited studies on risk-relievers despite its clearly crucial role in overcoming consumer resistance to purchasing. Since the seminal work of Roselius (1971), few research has focused on risk-relievers. These studies mostly used a simple method to rank the relievers used by consumers (e.g. Cases, 2002; Griffin & Viehland, 2010; Zheng, Favier, Huang, & Coat, 2012). Most research had also conceptualized perceived risk as comprising of just a few items (i.e. multifaceted) although consumers' risk perceptions are likely to be more complex. Specific travel studies indicate that consumers search for information during trip planning (Jacobsen & Munar, 2012). Usually air tickets are among the top three information most searched by consumers online to facilitate decision making (Xiang, Wang, O'Leary, & Fesenmaier, 2015). However, the literature is silent on the specific role of this search behaviour as a risk-reliever.

Malaysia is fundamentally different from many other countries culturally, due to its Asian collectivistic, multi-ethnic and multi-religious population. Although internet access is quite high, user penetration is only 11.6% for online flight reservations (Statista, 2017). Consumers living in Asia tend to have different behaviour from their individualistic western counterparts (Zheng, 2017). Being a developing nation, findings of this Malaysian study help to shed light on perceived risk and risk-reducing strategies for similar emerging markets.

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Accordingly, this study aims to address the following research questions: How do Malaysian consumers perceive risk of online flight reservations? What information search behaviour is displayed by consumers? What is the effect of consumers' information search behaviour in relieving perceived risk of reserving flights online, and intention to make online reservations? First, a literature review on perceived risk and information search as risk-reliever is presented. Next, the methodology used is described, followed by the findings. Finally, there is a discussion on the study's implications, and directions for future research.

2. LITERATURE REVIEW

2.1. Perceived Risk

Bauer (1960) first described perceived risk as being unavoidable due to uncertainties about the purchase consequences before purchasing. As some buying outcomes will be bad, consumers tend to perceive risk for any items under purchase consideration. Taylor (1974) noted that the basic problem in consumer behaviour is choice. Since choices made will lead to unknown future outcomes, consumers must deal with the uncertainty or risk. Risk is generally perceived as painful because it inflicts anxiety, forcing consumers to manage risk in some ways. Mitchell (1999) supported this argument by asserting that people are generally conservative in that they are more prone to avoid mistakes than trying to maximize utility in purchasing decisions. When faced with uncomfortable risk, consumers may simply switch sellers.

2.2. Perceived Risk of Online Flight Reservations

Perceived risk of the internet as a purchase channel has been identified as a key reason for consumers' refusal to reserve air tickets online. Ruiz-Mafé and colleagues (2009) described perceived risk as consumers' expectation of loss from reserving flights online. They found that Spanish travellers' risk perceptions negatively influenced intention to buy air tickets online. Another study comparing flights reserved via traditional service and the web revealed that risk perceptions are consistently greater for online than offline reservations throughout all five stages of the consumer buying process (Cunningham, Gerlach, & Harper, 2004). Similarly, Kim, Kim, and Leong (2005) found that perceived risk negatively affects the willingness to reserve flights online.

Like any online shopping, purchasing air tickets online entails the same usage of self-service technology. One has to surf the internet to check various websites using multiple search engines to compare air fares, travel dates, routes, and to key-in the correct details (Cunningham, Gerlach, & Harper, 2008). Any mistakes made falls solely on the consumer, who generally face much difficulties to rectify errors. Thus, consumers perceive higher risk with reservations made online than offline from travel agencies and airline ticketing offices.

2.3. Multidimensionality and Dimensions of Perceived Risk

Perceived risk is the consumers' belief that potential negative outcomes will result from internet transactions (Kim, Ferrin, & Rao, 2008). Some past online studies examined perceived risk from a multidimensional perspective. Forsythe *et al*. (2006) developed three perceived risk dimensions described as financial, product and time (convenience) risks. Significant inverse relationships were found between these risk dimensions and online shopping behaviour. Subsequently, Crespo *et al*. (2009) expanded consumer perceived risk into six dimensions comprising of financial, performance, time, psychological, social and privacy risks. Their findings on both online and offline shoppers showed that perceived risk is reflected significantly by all the measured dimensions. Limited studies on online flight reservations had also investigated perceived risk as being multidimensional consisting of security, privacy, financial, performance, and psychological risks (Kim, Qu, & Kim, 2009; Ruiz-Mafé *et al*., 2009).

Security risk is among the top concerns of individuals who hesitate to shop online. Consumers fear that unknown third-parties may infringe one's personal, financial or transactional record by violating data protection systems (Pappas, 2016) as credit card details must be given to the seller over the internet to make payment. Travel studies found that consumers' refuse to shop online due to worries about web security (Wolfe, Hsu, & Kang, 2004). Similarly, studies on online flight reservations showed security risk to be consistently of utmost concern to consumers intending to make a purchase (Kim *et al*., 2005, 2009).

Consumers are also highly sensitive about privacy intrusion in online travel shopping (Ruiz-Mafé *et al*., 2009). Privacy can be violated through the unapproved sharing of consumers' personal data, sending consumers junk emails, and snooping on shopping behaviour by online retailers (Miyazaki & Fernandez,

2001). For flight reservations, consumers have been found to be reluctant to provide personal details due to fears that their life will become fully exposed (Ruiz-Mafé *et al*., 2009).

Financial risk refers to the potential of losing money in online transactions. Price dispersions for similar items sold online pose financial risk to consumers who do not actively search for bargains on the internet. For flights sold online, wide price dispersions still exist in some markets (Chen & Yuan, 2014) even though studies indicate that higher price and product transparency in the internet has led to lower fares over time (Brunger, 2010). Typically air fares fluctuate daily even within the same airline website, hence there could be perceived financial risk involved.

Performance risk refers to consumers' evaluation of possible performance problems, malfunctions, processing errors, reliability and/or security issues, causing the e-service to not perform as expected (Featherman & Wells, 2010). Studies revealed the presence of perceived performance risk for online flight reservations (Kim *et al*., 2009; Ruiz-Mafé *et al*., 2009). Consumers worry that air tickets bought online will not meet expectations such as non-receipt of the paid airfares, not permitted to board a plane, or does so under unexpected travelling conditions (Ruiz-Mafé *et al*., 2009).

Kim *et al*. (2005) described psychological risk as consumers' disconcerting thoughts of purchasing flight online, and found it to be the second most important risk dimension. Other studies similarly showed that consumers perceive psychological risk for online flight reservations (Kim *et al*., 2009; Ruiz-Mafé *et al*., 2009) possibly due to the rather costly air fares, adding to the complexity and difficulty of making purchase decisions. Overall, these studies showed that not all risk dimensions exert the same level of influence on intention to book flights online. As consumers face perceived risk before purchase, it is hypothesized that:

H1: Consumers' perceived risk negatively influences intention to reserve flight online.

2.4. Risk-Relievers

Roselius (1971) described risk-relievers as an action by the buyer or seller to strategize how to resolve purchase risk. In online shopping, Cases (2002) asserted that consumers will use those risk-relievers capable of reducing perceived risk to a level

deemed low enough to proceed with the actual purchase. Her study found that different risk relievers are most relevant for different sources of risk. Griffin and Viehland (2010) replicated Cases' (2002) study for the purchase of air tickets, clothing and consumer electronics. Some relievers were found to occupy the same ranking as Cases' (2002) results. More recently Zheng *et al*.'s (2012) research on online shopping for clothing also found that Chinese consumers indicated several methods as useful risk-relievers. Overall, these studies utilized simple ranking to examine the various risk-relieving ways used for online purchases. In contrast, this study aims to enrich explanation of risk-relievers by investigating the direct impact of two specific risk-relievers' on perceived risk and intention to buy online.

Information Search as a Risk-Reliever

Consumers may cope with product choice uncertainty by searching for more pre-purchase information. In travel planning, some studies examined consumers' search behavior for the type or content of information (Marchiori & Cantoni, 2015) while others focused on sources of information (Money & Crotts, 2003; Xiang *et al*., 2015) separately. However, most likely both factors are considered. Thus, this study investigates both the information type and source used to reduce perceived risk of the internet, as well as the effect on online purchase intention.

Type of Information

It has been argued that flight information provided online can be complex including those for low cost carriers (CBS New York, 2015). Price is a type of information searched to help relieve perceived purchase risk (Cases, 2002; Griffin & Viehland, 2010; Zheng *et al*., 2012). To relieve risk perceptions for online flight reservations, several studies revealed that consumers search for price information such as cheapest air fares (Kim *et al*., 2009) and special offers (Griffin & Viehland, 2010). Online shopping studies also found that consumers use product information to relieve perceived purchase risk for various items (Cases, 2002; Griffin & Viehland, 2010; Nepomuceno *et al*., 2014; Zheng *et al*., 2012). Limited studies suggest that consumers attempt to read product information prior to reserving flight online (Griffin & Viehland, 2010; Kim *et al*., 2009) presumably to help reduce perceived risk. Comparison shopping can be easily done over the internet. Some studies found that consumers check multiple websites to compare various products and services to reduce

perceived purchase risk. It has been shown that consumers search around the internet to reduce risk of buying clothes, consumer electronic items and computers (Cases, 2002; Griffin & Viehland, 2010). Thus, it is proposed that:

H2: Type of information lessens perceived risk of reserving flight online.

Sources of Information

Vast literature indicates that consumers attempt to reduce purchase uncertainty by referring to various sources. Consumers are more prone to rely on personal than impersonal sources of information. Historically, family and friends strongly influence purchase decisions, and help to ease perceived buying risk (Roselius, 1971). Similarly, online shopping studies worldwide show that consumers still depend on information from close others as a way to relieve perceived risk of buying clothes (Cases, 2002; Zheng *et al*., 2012) and air tickets (Griffin & Viehland, 2010). Scant research on online flight reservations in Malaysia suggest that family and friends assured hesitant consumers to buy flights online (Shah Alam & Mohd Yasin, 2010). Thus, it is postulated that:

H3: Personal sources of information lessen perceived risk of reserving flight online.

2.5. The Effect of Information Search on Purchase Intention

Generally consumers pass through five-stages during the buying process from need recognition to information search, evaluation of alternatives, purchase decision, and finally post-purchase behaviour (Kotler & Armstrong, 2016). Thus, information search plays a role in influencing the buying decision. This relationship between information search and purchase intention has been widely supported by the marketing literature both offline and online.

Ukpabi and Karjaluoto's (2017) extensive review of travel studies indicates that information may affect intention to shop online. Studies show that consumers commonly seek the relevant type of information before purchasing travel items. Tourists to Hong Kong indicated that price information is among the top two attributes that influenced their intention to buy travel online. More recently, Escobar-Rodríguez and Carvajal-Trujillo (2014) found that price information positively affected travelers' intention to buy air tickets from the websites of low-cost carriers. Hence, it is suggested that:

H4: Type of information has a positive influence on intention to reserve flight online.

In travel planning, consumers commonly refer to information sources before making a decision. Family and friends have been shown to be among the most used sources of information for hotel bookings regardless of the type of technological device used for the search process (Murphy, Chen, & Cossutta, 2016). Specifically for air tickets purchases, information from close others such as family and friends was also found to be significantly related to intention to reserve flights online (Escobar-Rodríguez & Carvajal-Trujillo, 2014). In Malaysia, majority of internet users were found to be influenced by their friends to purchase air tickets online (Sulaiman *et al*., 2008; Lee *et al*., 2019) Thus, it is hypothesized that:

H5: Personal sources of information positively influence intention to reserve flight online.

2.6. The Mediating Effect of Perceived Risk

Past studies on perceived risk as a mediator between information and purchase intention show mixed results. Several research examined the effect of information type on perceived risk, and purchase intention (Suwelack, Hogreve, & Hoyer, 2011; Yeung, Yee, & Morris, 2010). Information on brand, price and money-back guarantees was studied. The overall findings indicate that perceived risk mediates the relationship between information type and purchase intention, but price discount had no effect on perceived risk, which was an insignificant mediator between price and purchase intention (Yeung *et al*., 2010). Thus, it is suggested that:

H6: Perceived risk is a mediator between information type and intention to buy flight online.

In contrast, the mediating effect of perceived risk between information source and purchase intention has been under-researched. Mitra, Reiss and Capella (1999) investigated the effects of personal and impersonal sources of information on perceived risk and consumers' behavioral intention for services. They found that information sources affect perceived risk of the service. Personal sources of information such as family and relatives are preferred by consumers for all types of services. Bieger and Laesser's (2004) travel study also indicates that information from friends and relatives are most used to lessen pre-purchase perceived risk, and help to increase consumers'
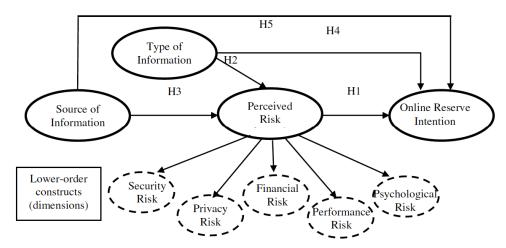
Figure 1: The research framework. Source: own research.

intention to travel. Likewise, Sulaiman *et al*.'s (2008) research on Malaysians imply that close sources like friends help to relieve risk perceptions of the internet which in turn lead to the intention to buy e-tickets. Hence,

H7: Perceived risk is a mediator between personal sources and intention to buy flight online.

3. METHODOLOGY

3.1. Sampling and Data Collection

Data was collected online due to the aim of the study. In theory, the population consists of all internet users who are at least 18 years old since they are more prone to reserve flight online than non-internet users. As a list of internet users is nonexistent, convenience sampling was used to collect data from Malaysians.

3.2. Questionnaire and Measurements

A self-administered survey with 3 parts was developed for this study. In part one, Likert-style questions were posed to measure the constructs. The questions were adapted from several past studies. A 7-point Likert scale was followed, from 1 (Strongly Disagree) to 7 (Strongly Agree). Part two covered questions on the demographics of the respondents. In this study, the reflective-reflective hierarchical component model (HCM) type was applied (Ringle, Sarstedt, & Straub, 2012). The higher-order construct (HOC) and lower-order constructs (LOCs) have a reflective measurement, where the LOCs are manifestations of their corresponding HOC. Similarly, the indicators reflect their underlying LOCs (Hair, Hult, Ringle, & Sarstedt, 2017).

3.3. Data Analysis

SPSS version 20 was used for the descriptive analyses. Next, partial least squares structural equation modelling (PLS-SEM) with SmartPLS 3 program (Ringle, Wende, & Becker, 2015) was utilized to validate the measures developed and test the hypotheses. PLS is considered to be a robust technique that imposes minimal demand on sample size, measurement scales, and data distribution patterns (Hair *et al*., 2017). It can measure complex higher-order models, thus enabling many behavioral factors to be captured. In this study, Perceived Risk has been conceptualized as a higher order construct. Moreover, PLS can be suitably used to explore, predict and develop theory (Hair *et al*., 2017). Since the current study newly operationalize both information type and source as risk-relievers in the context of e-ticketing, the usage of the PLS procedure is particularly relevant.

4. RESULTS

In total, there are 231 usable responses which conforms with Hair *et al*.'s (2012) 30-year review of past research on PLS-SEM applications that showed the average sample size to be 230. Table 2 displays the respondents' demographic profile. Most are in the 30 to 39 age group (33.3%), followed by the 18 to 29 (24.7%), 40 to 49 (15.6%), 50 to 59 (15.6%) and over 59 age group (10.8%). Since 69.7% of the total Malaysian population are aged 15-64 years, the study respondents largely fall into this majority age category. More females (64.1%) than males (29.9%) responded. The sample is also skewed towards females, and more highly educated people. Most respondents are also middle income earners who make between RM 3,000 and RM 6,999 per month.

Table 1:   Question Items. Source Shown Below

Construct	Construct dimension	Item/Indicator	Source
Perceived Risk (Higher-order construct)	Privacy risk (Lower-order construct) PR	If I use the internet to buy air tickets: 1. my personal details could be used without my consent 2. my personal details could be used without my knowledge 3. I would receive a lot of spam in the future 4. my personal details could be improperly used (e.g. sold to a third-party)	Adapted from Ruiz-Mafe *et al*. (2009)
	Security risk (Lower-order construct) S	1. it would be insecure to send sensitive information over the Internet 2. my credit card details are likely to be stolen 3. my personal details could be accessed by an unknown third-party 4. I would feel insecure sending sensitive information over the internet	Adapted from Kim *et al*. (2005, 2009)
	Financial risk (Lower-order construct) F	1. I would not get my money's worth from the tickets 2. it would lead to a financial loss to me 3. it would be unwise as I can get a better deal elsewhere	Adapted from Kim *et al*. (2005)
	Performance risk (Lower-order construct) PE	2. it would be difficult to find out about the flight characteristics (time schedule, routes, etc.) 3. I am not confident about the ability of the online seller to perform as expected 4. considering the possible problems associated with the online seller's performance, there is a lot of risk involved	Adapted from Ruiz-Mafe *et al*. (2009), Kim *et al*. (2005, 2009)
	Psychological risk (Lower-order construct) PS	2. I would feel anxious 3. I would feel unnecessary stress 4. I would feel it does not match my self-image (the way I think of myself)	Adapted from Ruiz-Mafe *et al*. (2009)
Type of Information TI		I would choose the following ways to ensure that it is all right to buy air tickets using the internet: 1. I would search for price information from the internet 2. I would search for flight information (e.g. date, time, routes, seats, airports, …) from the Internet 3. I would look up a few websites to compare information before making a decision to buy	Adapted from Ramkissoon and Uysal (2011), Kim *et al*. (2009), Adapted from Ramkissoon and Uysal (2011)
Source of information SI		1. I would get information from my family / relatives 2. I would get information from my friends	
Online Reserve Intention INT		1. I will probably use the internet to buy air tickets in the future 2. I plan to buy air tickets online sometime in the future	Adapted from Davis (1989)

4.1. Model Evaluation

In PLS-SEM analysis, the research model assessment comprise of two steps (Chin, 2010). First, the measurement model is assessed for the reliability and validity of the constructs. Second, there is an assessment of the structural model and the relationships between the constructs as specified in the research model.

Measurement Model Evaluation

Reflective constructs should be assessed for internal consistency reliability, convergent validity, and discriminant validity (Hair *et al*., 2017). In Table **3**, all values of composite reliability and Cronbach's alpha are well over the lower bound threshold of 0.70. Moreover, all indicator outer loadings are above 0.80, except PR3 with a value of 0.743. Overall, the values considerably exceed 0.70 indicating high levels of internal consistency reliability of each construct. To establish convergent validity, the outer loadings of the indicators should exceed 0.70 and be statistically significant (Hair *et al*., 2017) at $p<0.05$. From Table **3**, all outer loading values and p-values meet these criteria. Additionally, the average variance extracted (AVE) for each construct should be examined (Fornell

Table 2:   Demographic Profile of the Respondents. Online Survey (2016)

Variables	Category	Frequency	Percentage (%)
Age	18-29	57	24.7%
	30-39	77	33.3%
	40-49	36	15.6%
	50-59	36	15.6%
	60 and above	25	10.8%
Gender	Male	69	29.9%
	Female	148	64.1%
Educational level	Secondary school	37	16.0%
	Vocational school	1	0.4%
	Diploma	25	10.8%
	Undergraduate	53	22.9%
	Postgraduate	92	39.8%
	Professional	22	9.5%
Monthly income	Below RM1,000	43	18.6%
	RM1,000 – RM2,999	31	13.4%
	RM3,000 – RM4,999	56	24.2%
	RM5,000 – RM6,999	47	20.3%
	RM7,000 – RM9,999	30	13.0%
	RM10,000 and above	19	8.2%

& Larcker, 1981). All AVE values in Table **3** are more than 0.50 ranging from 0.712 to 0.914. Collectively, the results support convergent validity within each construct.

Next, discriminant validity between constructs was evaluated using cross loadings and the Fornell-Larcker criterion. Due to issues with cross loadings, three items (PE1, PS1 and F4) were removed from further analyses in order to attain an adequate level of discriminant validity between constructs. Then, the Fornell-Larcker criterion (1981) was applied to test for discriminant validity. To establish that the model constructs are conceptually distinct from one another, a construct should have stronger correlations with its own measures than with other constructs (Chin, 2010). Table **4** presents the correlations between constructs, where the diagonal elements are the square root of the AVEs (√AVEs). As seen, each construct's √AVE is higher than its correlations with other constructs. Hence, each construct shares more variance with its own group of indicators than with other constructs, supporting adequate discriminant validity between constructs.

Hierarchical Component Model Evaluation

The HOC and LOCs should also be assessed for convergent and discriminant validity. Following

tradition, this research used the repeated indicators approach to assign all LOC indicators to the HOC (Hair *et al*., 2017). In Table **5**, most outer loadings exceed 0.70 indicating convergent validity. Since the few other values are quite close to 0.70 and significant at p<0.05, all items are retained in the model. Moreover, all AVE values are above 0.50 supporting convergent validity of the HOC, Perceived Risk. Table **6** presents the relationship between the HOC, Perceived Risk and its corresponding LOCs. The results show that Perceived Risk has significant associations (p<0.05) with its LOCs. Next, the HOC and the other constructs in the model were evaluated for discriminant validity. From Table **7**, using the Fornell-Larcker guideline, each construct's √AVE on the diagonal is greater than its correlations with other constructs. Thus, the results support discriminant validity between the HOC and other constructs in the research model.

Structural Model Assessment

The structural model was assessed for collinearity issues, model relationships, and predictive relevance (Chin, 2010; Hair *et al*., 2017). First, the inner variance inflation factor (VIF) values were checked for collinearity problem. In Table **8**, all VIF values are far below the threshold of 5, indicating no critical collinearity issues among the predictor constructs in the structural model.

Table 3:   Construct Reliability and Convergent Validity. Own Research

Construct/Indicators	Mean	Standard Deviation	Outer loading	p-value	Composite reliability	Cronbach's alpha	AVE
Privacy Risk	4.06	1.789			0.908	0.863	0.712
PR1		1.801	0.879	0.000			
PR2		1.842	0.871	0.000			
PR3		1.716	0.743	0.000			
PR4		1.772	0.874	0.000			
Security Risk	4.29	1.755			0.941	0.916	0.799
S1		1.755	0.899	0.000			
S2		1.759	0.904	0.000			
S3		1.691	0.880	0.000			
S4		1.798	0.893	0.000			
Financial Risk	3.44	1.509			0.906	0.845	0.764
F1		1.479	0.904	0.000			
F2		1.571	0.879	0.000			
F3		1.455	0.838	0.000			
Performance Risk	3.43	1.634			0.914	0.858	0.780
PE2		1.519	0.849	0.000			
PE3		1.643	0.897	0.000			
PE4		1.614	0.902	0.000			
Psychological Risk	3.37	1.542			0.909	0.849	0.769
PS2		1.550	0.912	0.000			
PS3		1.606	0.896	0.000			
PS4		1.457	0.821	0.000			
Type of Information	5.97	1.101			0.910	0.851	0.772
TI1		1.012	0.920	0.000			
TI2		1.012	0.883	0.000			
TI3		1.250	0.830	0.000			
Source of Information	5.25	1.313			0.934	0.858	0.876
SI1		1.299	0.932	0.000			
SI2		1.325	0.940	0.000			
Online Reserve Intention	5.02	1.454			0.955	0.906	0.914
INT1		1.429	0.952	0.000			
INT2		1.474	0.960	0.000			

Table 4:   Analysis of Correlations Using the Fornell-Larcker Criterion. Own Research

Construct	INT	PriR	SecR	FinR	PerR	PsyR	TI	SI
INT	*0.956*							
PriR	-0.402	*0.844*						
SecR	-0.448	0.708	*0.894*					
FinR	-0.525	0.584	0.690	*0.874*				
PerR	-0.568	0.586	0.666	0.784	*0.883*			
PsyR	-0.568	0.560	0.602	0.720	0.773	*0.877*		
TI	0.118	0.035	0.291	-0.039	-0.090	-0.113	*0.878*	
SI	-0.216	0.227	0.089	0.275	0.308	0.238	0.294	*0.936*

Table 5:   Convergent Validity between the HOC with its Related Indicators. Own Research

Higher-order construct/Indicators	Outer loading	p- value	AVE
Perceived risk			0.558
PR1	0.644	0.000	
PR2	0.662	0.000	
PR3	0.683	0.000	
PR4	0.733	0.000	
S1	0.762	0.000	
S2	0.792	0.000	
S3	0.788	0.000	
S4	0.785	0.000	
F1	0.793	0.000	
F2	0.782	0.000	
F3	0.715	0.000	
PE2	0.739	0.000	
PE3	0.766	0.000	
PE4	0.824	0.000	
PS2	0.786	0.000	
PS3	0.769	0.000	
PS4	0.646	0.000	

Table 6:   The Relationship between the HOC and its Related LOCs. Own Research

Higher-order construct/ Indicators	Lower-order construct	Outer loading	p-value
Perceived risk	Privacy risk	0.811	0.000
	Security risk	0.874	0.000
	Financial risk	0.874	0.000
	Performance risk	0.880	0.000
	Psychological risk	0.840	0.000

Table 7:   Analysis Using the Fornell-Larcker Criterion. Own Research

Construct	Intention	Perceived risk	Type of Information	Source of Information
Intention	0.956			
Perceived risk	-0.581	0.747		
Type of Information search	0.118	-0.019	0.879	
Source of Information	-0.216	0.314	0.295	0.936

Model relationships were assessed via the standardized path coefficients and significance levels, to test the proposed hypotheses. Figure **2** displays the path model results. H1 is supported. Perceived risk has a significant negative relationship with intention to reserve flights online ($\beta=-0.54$, $p<0.001$). This finding is consistent with past research on website shopping (Dai, Forsythe, & Kwon, 2014) as well as several

studies regarding online flight bookings (Kim *et al*., 2005, 2009; Ruiz-Mafé *et al*., 2009).

Table 8: Inner VIF Values. Own Research

Construct	Intention	Perceived risk
Perceived risk	1.004	
Type of Information	1.033	1.033
Source of Information	1.037	1.033

The results also support H2. Like past studies (Zheng *et al*., 2012), type of information is found to reduce perceived risk of online flight reservations (β=-0.14, p<0.05). In contrast, the results for H3 indicate a significant positive relationship between personal information source and perceived risk (β=0.34, p<0.001). This finding is totally different from past studies (Escobar-Rodríguez & Carvajal-Trujillo, 2014; Sulaiman *et al*., 2008) which showed that personal sources of information help to decrease consumer perceived risk.

The statistical results show a significant positive relationship between type of information and intention (β=0.14, p<0.05), thus supporting H4. This finding is congruent with past studies (Ukpabi & Karjaluoto, 2017) which found that travelers search for various types of information to increase their purchase intention. Surprisingly, H5 is not supported. Personal

sources of information have no significant relationship with intention to book flights online (β=-0.09, p>0.05). Unlike past research (e.g. Shah Alam & Mohd Yasin, 2010; Zheng *et al*., 2012), family and friends do not affect intention to book air tickets online.

To test for the mediating effects as proposed in H6 and H7, the direct and indirect effects were evaluated. From Table **9**, type of information has both direct and indirect effects on intention i.e. perceived risk partially mediates the relationship between type of information and intention, thus validating H6. It indicates that consumers search for information type partly to help relieve perceived risk, which then influence the intention to reserve flight online. Although similar results were found previously for other products, others demonstrated mixed findings depending on the type of product bought online (Lee & Stoel, 2014; Suwelack *et al*., 2011).

As for personal sources of information, it has no significant direct effect on intention but there is a significant indirect effect through perceived risk. Hence, H7 is supported. This result suggests distrust of advice from close others. To assess the model's predictive power, explained variance R^2 and predicted relevance Q^2 were observed. The R^2 values for intention and perceived risk are 0.35 and 0.15 respectively. In consumer behaviour studies, R^2 values of 0.20 are considered high (Hair *et al*., 2017). Moreover, Cohen's
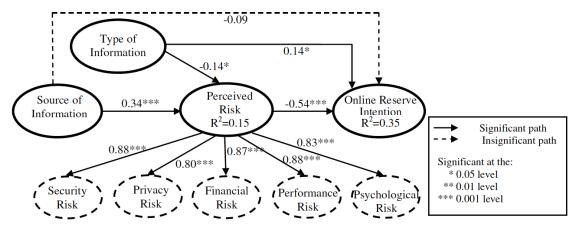

Figure 2: PLS analysis results. Source: Own research.

Table 9: The Direct and Indirect Effects. Own Research

	Direct Effect	95% CI of the Direct Effect	t-value	Significance (p < 0.05)?	Indirect Effect	95% CI of the Indirect Effect	t-value	Significance (p < 0.05)?
TI → INT	0.14	[0.09,0.20]	2.46	Yes	0.08	[0.07, 0.08]	2.39	Yes
SI → INT	-0.09	[-0.14,-0.04)	1.67	No	-0.18	[-0.19,-0.18]	4.766	Yes

(1988) guideline describes R^2 values of 0.26, 0.13 and 0.02 as substantial, moderate and weak respectively. Therefore, this research model is capable of explaining intention substantially and perceived risk moderately.

Another evaluation approach applied was Q^2 which utilizes the sample reuse technique (Geisser, 1974; Stone, 1974). The Q^2 values of the endogenous constructs were computed in SmartPLS 3 with the blindfolding procedure, and found to be 0.30 (intention) and 0.08 (perceived risk). As the Q^2 values exceed zero, predictive relevance for the endogenous constructs is supported.

5. DISCUSSIONS AND IMPLICATIONS

This study has contributed to the perceived risk theory and the buying decision model in several ways. First, it extends understanding of how consumers react to perceived risk before actual purchase. Findings of the study affirm that consumers search for type of information as a way to relieve perceived risk of reserving flight online. Unexpectedly, personal sources of information do not affect intention to buy air tickets online. Most of the respondents are from gen Y and well educated. Gen Y perceive less risk with web shopping and rely greatly on technical information to make buying decisions (Rahulan *et al.*, 2015). This may be the likely reason why personal sources of information are not important to the study respondents.

Although Gemunden (1985) asserted the need for improved operationalization of information search to address perceived risk, limited studies have been conducted thus far. Most researchers have focused on either information sources (Money & Crotts, 2003) or less extensively on information type (Marchiori & Cantoni, 2015) used by consumers. Limited research incorporating both factors failed to employ any statistical procedure to compare the effects of the two constructs (e.g. Bruch & Bellgran, 2013). By contrast, this study provides statistical evidence to differentiate information type from source. Thus, it improves explanation that consumers consider both type and source of information in purchase decisions. This research also newly adds to the literature on the buying decision process, by underpinning the significant role played by information type in reducing perceived risk of purchasing services online as opposed to few past studies on physical products (e.g. Lee & Stoel, 2014) or stores (e.g.Yeung *et al.*, 2010). Research on relieving risk perceptions is more crucial for services bought online as perceived risk is greater for purchases made online than offline and for the procurement of services than products (Mitra *et al.*, 1999). Seeking information from personal sources such as friends and family to help relieve perceived risk of buying flight online has been found in scarce studies in Malaysia (Shah Alam & Mohd Yasin, 2010; Sulaiman *et al.*, 2008) and elsewhere (Griffin & Viehland, 2010). However, the lack of support from the study findings implies that the behaviour of younger Malaysian consumers may have evolved to become more similar to those of the developed world.

Second, the empirical results support the multidimensionality of consumers' perceived risk. Perceived risk is reflected almost equally by the five measured. This indicates that all five dimensions are considered by consumers in their assessment of overall perceived risk of online flight reservations, and that each dimension is viewed as a distinct type of purchase risk. Moreover, limited research on multidimensional risk perceptions for online flight bookings (e.g. Kim *et al.*, 2005, 2009; Ruiz-Mafé *et al.*, 2009) had mostly excluded the link with purchase intention. By contrast, this study provides statistical evidence that the relevant, current dimensions of perceived risk are the five risk dimensions investigated. The findings corroborate past studies on other types of online transactions (e.g. Crespo *et al.*, 2009; Nepomuceno *et al.*, 2014), which collectively offer better explanations of consumer risk perceptions via analyses of multidimensional risk.

Practically, airlines should be cognizant of information search behaviour as a way to reduce perceived risk of reserving flights online. The findings imply that consumers would appreciate clear and relevant type of information from airlines. Although recent research on travel behaviour shows that consumers still refer to close personal sources of information (Murphy *et al.*, 2016), the current study found otherwise. This implies that airlines need not rely on favorable word-of-mouth from satisfied close others.

Clearly, consumer perceived risk has a substantial impact on intention to reserve flight online. The findings imply that airlines need to pay closer attention to the distinct types of risk perceived by consumers. As found by Cunningham *et al.* (2005), consumers perceive various types of risk for online flight reservations, which significantly influenced their final decision from where

to buy. Supporting results of this study imply that managers need to appropriately address each risk dimension in order to increase intention to reserve flight online.

6. LIMITATIONS AND FUTURE RESEARCH

As in all research, this study has some limitations. First, the data was collected using convenience sampling on Malaysians only. Thus, generalization of the results should be done cautiously. Second, the respondents are skewed towards females. Hence, care should be exercised in generalizing the results to the overall population. Third, the survey questions were not directly linked to the travel purpose of the respondents. The same respondent may hold different perceived risks and intention to reserve flight online depending on the specific travel purpose. Further research on various items sold online and offline could confirm if the model will hold equally well for these categories. Other risk-relievers could also be included in future studies such as price and money-back guarantee. Would consumers ignore perceived risk in favor of cheap flights sold online? Money-back guarantees have been found to reduce perceived risk of buying clothes online (Cases, 2002; Zheng *et al*., 2012). Thus, it would also be useful to examine the role of money-back guarantee on consumers' intention to reserve flight online.

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